**Substitute Specificati n Attached**

Our Ref.: B 2729 PCT

# Method for producing plants having an increased tolerance against drought and/or fungal attack and/or increased salt concentrations and/or extreme temperature by the expression of plasmodesmata-localized proteins

## Field of the Invention

The invention relates to the use of nucleic acids which code for a (poly)peptide with an intrinsic affinity to plasmodesmata, to the production of plants or parts thereof having an increased tolerance against drought and/or fungal infections and/or increased salt concentrations and/or extreme temperatures (heat/cold), and to corresponding methods. A plant, a plant tissue or a plant cell is advantageously transfected with the nucleic acid. The nucleic acid preferably codes for a virus-encoded transport protein which, in a particularly preferred embodiment, is a derivative of the pr17 protein with a hydrophilic N-terminal extension.

## Background of the Invention

A number of documents are cited in this specification, the disclosure content of which is herewith incorporated by reference and the technical teaching of which can be applied within the meaning of the present invention.

One aim of classic plant breeding is the creation of productive varieties showing an increased tolerance against environmental factors or being resistant to stress factors. Those stress factors can be both of a biotic (insects, viruses, fungi etc.) and an abiotic nature (extreme temperatures, salt, drought). Whereas wildplants have adapted themselves to the extreme living conditions at stress-dominated habitats, drought, heat or salinity of the soil restrict the possibility of cultivating crop plants in such areas. On the other hand, agriculture also suffers heavy loss through abiotic stress at other habitats, as was shown in the USA in the year of drought in 1983: Almost half of the entire maize crop and a third of the expected soybean yield were destroyed as a consequence of persistent drought. All the cited abiotic stress factors impair the intercellular water balance. However, plants can adapt themselves to stress situations to a certain extent (Bohnert, (1995) Plant Cell 7: 1099-1111). Prot ins, for example, as well as metabolites of the plant metabolism like sugar alcohols, prolin or glycine betaine have been id ntified as osmoregulators

**Clean Copy of th Original Specification Attached**

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